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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,520	06/15/2001	Dong Il Han	2080-3-26	9939
35884	7590	10/22/2004	EXAMINER	
LEE, HONG, DEGERMAN, KANG & SCHMADEKA, P.C. 801 SOUTH FIQUEROA STREET 14TH FLOOR LOS ANGELES, CA 90017			CHEN, PO WEI	
			ART UNIT	PAPER NUMBER
			2676	

DATE MAILED: 10/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/882,520

Applicant(s)

HAN, DONG IL

Examiner

Po-Wei (Dennis) Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6,7,9-14 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6,7,9-14 and 16-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

In response to an Amendment received on September 13, 2004. This action is non-final.

Claims 1, 3-4, 6-7, 9-14 and 16-20 are pending in this application. Claims 1, 4, 7 and 14 are independent claims.

The present title of the invention is "Apparatus and Method for Correcting Keystone Distortion".

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 3, 6, 9 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 3 recites the broad recitation a line memory that

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stores each line of said input image and outputs said stored line of said input image to said format converter, and the independent claim 1 recites a line memory stores each line of said output image generated from said format converter and outputs said stored line of said output image which is the narrower statement of the range/limitation. The claims are unclear on the functions of the line memory and format converter. Since claims recite the line memory stores both output image from format converter in claim 1 and input image to format converter in claim 3.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 4, 7, 10-14 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over West et al. (US 6,339,434; refer to as West herein) in view of Hwang (US 5,818,416).

5. Regarding claim 1, West discloses an image scaling circuit comprising:

An apparatus for correcting keystone distortions in a display system ("Fig. 9 illustrates the effect of the image warping function when used for keystone correction", lines 6-7 of column 3);

A horizontal size generator that receives N horizontal sync signals of an input image and generates N corresponding horizontal output sizes, each of said output sizes being generated at each of said sync signals based on a horizontal input size, a vertical size, and a desired keystone

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factor of said input image (“Keystone correction involves incrementing or decrementing the horizontal down sample value M and start position at each line. The vertical down sample value M is also incremented or decremented each line to preserve the aspect ratio of the image from top to bottom” and “The vertical and horizontal sample rate converters 21 and 22, as mentioned above, scale the captured image up or down to any arbitrary resolution”, lines 21-37 of column 3, lines 4-62 of column 7 and lines 66-67 of column 9 and line 1 of column 10 and Fig. 1 and 11).

A format converter that receives said input image and generates an output image, each line of said output image now having said corresponding horizontal output size, where N represents a total number of lines of said output image (“Keystone correction involves incrementing or decrementing the horizontal down sample value M and start position at each line. The vertical down sample value M is also incremented or decremented each line to preserve the aspect ratio of the image from top to bottom” and “The vertical and horizontal sample rate converters 21 and 22, as mentioned above, scale the captured image up or down to any arbitrary resolution”, lines 4-12 of column 7 and lines 66-67 of column 9 and lines 1-15 of column 10 and Fig. 11). It is noted that the vertical and horizontal sample rate converters scale each line of the image to the desired resolution format according to the keystone correction amount. Thus, limitation of claim is met.

West does not disclose a sync signal generator that generates read control signals based on said sync signals and said horizontal output sizes; and a line memory that stores each line of said output image generated from said format converter and outputs said stored line of said output image according to said read control signals. Hwang discloses an image size adjusting apparatus utilizing the devices (line 1 of column 3 to line 56 of column 4 and Fig. 1; while claim

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recites sync signal generator, it is noted that the frequency multiplier 100 in Fig. 1 generates signal for controlling read enable ports 39-44 of the line memories based on inputted Hsync signal and Hsize. Thus, it functions as sync signal generator broadly recited by claim. Also, it is noted that each line memory (510-560) is designated to image data fed from the output of the A/D format converter 200 in Fig. 1).

It would have been obvious to one of ordinary skill in the art to utilize the teaching of Hwang to provide a simplification of adjusting operations of the horizontal and vertical image size of digital display monitors (lines 28-31 of column 2, Hwang). Also, by utilizing Hwang's teaching will provide the function of line-by-line data processing and a way to control memories in a well-known manner. Because West shows outputting the processed data to a conventional display (Fig. 13; such as a 'LCD', lines 5-15 of column 10) and Hwang discloses such a conventional monitor (abstract). And it is necessary to have control signals to read (and write) data from (to) a memory and West does show using memories for storing data. The use of a line memory provides a way to store the data for display.

6. Regarding claims 4, 7 and 14, statements presented, above, with respect to claim 1 are incorporated herein.

7. Regarding claims 10-13 and 17-20, it is noted that West does not specifically disclose the horizontal output size of a specific line being larger or smaller than other lines in the image. However, West teaches a "keystone correction involves incrementing or decrementing the horizontal down sample value M and start position at each line...the following equations can be used to calculate the increment/decrement amounts based on a desired angle of keystone correction" (lines 4-62 of column 7). It would have been obvious to one of ordinary skill in the

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art at the time of invention to realize that by utilizing the teaching of West, each line is incremented or decremented based on the desired angle of keystone correction. Thus, depending on the desired angle of keystone correction, each line can have a larger or smaller or the same size with other lines in the image. Thus, limitations of the claims are met.

8. Claims 3, 6, 9 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over West et al. (US 6,339,434; refer to as West herein) and Hwang (US 5,818,416) as applied to claims 1, 4, 7 and 14 above, and further in view of Furuhashi et al. (US 5,909,205; refer to Furuhashi herein).

9. Regarding claim 3, West does not disclose a sync signal generator that generates read control signals based on said sync signals and said horizontal output sizes. However, this is known in the art taught by Huang, as statements presented above, with respect to claim 1 are incorporated herein.

The combination of West and Huang does not disclose a line memory that stores each line of said input image and outputs said stored line of said input image to said format converter according to said read control signals. Furuhashi discloses a liquid crystal display control device utilizing the device (line 54 of column 6 to line 47 of column 8 and Fig. 1-2; it is noted that in Fig. 1, the line memory 111 stores inputted data and outputted to the enlargement processing control circuit 118, which corresponds to format converter, based on the read signal of line memory read control circuit 217 in Fig. 2. Since the claim broadly recites format converter, the enlargement process will convert the format such as size of the image). It would have been obvious to one of ordinary skill in the art to substitute the line memory of Furuhashi for the line memory of West because Furuhashi teaches that by utilizing the line memory will provide the

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advantage of low cost and ability to process image enlargement by utilizing low access speed memory (lines 3-7 of column 6, Furuhashi). Also, by utilizing Furuhashi's teaching will provide the function of line-by-line data processing and a way to control memories in a well-known manner. Because West shows outputting the processed data to a conventional display (Fig. 13; such as a 'Flat panel monitor', lines 52-53 of column 10) and Furuhashi discloses such a conventional monitor. And it is necessary to have control signals to read (and write) data from (to) a memory and West does show using memories for storing data. The use of a line memory provides a way to store the data for display.

10. Regarding claims 6, 9 and 16, statements presented, above, with respect to claim 3 are incorporated herein.

Response to Arguments

11. Applicant's arguments, see pages 7-12, filed September 13, 2004, with respect to the rejection(s) of claim(s) 1, 3-4, 6-7, 9-14 and 16-20 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of West and Hwang.

Applicant argues references do not teach or suggest the line memory receives and stores already processed and formatted by format converter and a sync signal generator that generates read control signals based on said sync signals and said horizontal output sizes; and a line memory that stores each line of said output image generated from said format converter and outputs said stored line of said output image according to said read control signals. However, this is known in the art taught by Huang (line 1 of column 3 to line 56 of column 4 and Fig. 1; while claim recites sync signal generator, it is noted that the frequency multiplier 100 in Fig. 1

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generates signal for controlling read enable ports 39-44 of the line memories based on inputted Hsync signal and Hsize. Thus, it functions as sync signal generator broadly recited by claim. Also, it is noted that each line memory (510-560) is designated to image data fed from the output of the A/D format converter 200 in Fig. 1).

In response to applicant's argument that argues no reasonable justification for combination of references is possible, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In response to applicant's argument that cited reference is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, West discloses an image scaling circuit utilizing keystone correction (lines 1-62 of column 7). And the Applicant is also directed to a method of correcting keystone distortion.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Po-Wei (Dennis) Chen whose telephone number is (703) 305-8365. The examiner can normally be reached on Monday-Thursday from 8:30 AM to 7:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C Bella can be reached on (703) 308-6829. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Po-Wei (Dennis) Chen
Examiner
Art Unit 2676

Po-Wei (Dennis) Chen
October 15, 2004



MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600